

42nd IISL COLLOQUIUM, 4-8 OCTOBER 1999, AMSTERDAM

INTRODUCTION

The 42nd Colloquium on the Law of Outer Space was opened by the President, Dr. N. Jasentuliyana, on 5 October 1999. The colloquium was attended by over 75 participants, and many excellent papers were presented. Discussion took place during a separate session and provided an occasion for lively debate on the most topical current space law issues.

A Dinner for IISL Members and Guests was graciously offered by the International Institute of Air and Space Law and the Law Faculty of Leiden University on 7 October at the beautiful restaurant "Allemansgeest" outside Leiden. Over 120 persons attended, including a great majority of the International Court of Justice, as well as officials of the IAF and IAA. Judge Schwebel, President of the Court gave a dinner speech on the activities of the Court.

The finals of the 8th Manfred Lachs Space Law Moot Court Competition were also held on 7 October and took place in the Great Hall of Justice at the Peace Palace, The Hague. The competition was realized with the help of the International Court of Justice, in particular Judge Vereshchetin, the Leiden Institute of Air and Space Law, the European Centre for Space Law (ECSL), and the Association of US Members of the IISL (AUSMIISL). Preliminary competitions were held in Europe and the USA, and the winners of those preliminaries met in the final round in The Hague. The University of Paris XI (France) and Vanderbilt University (USA) competed in the case concerning the "Mor-Toaler Sea-Launch project" (Brezonec vs. Mastodonia). The honourable court was composed of Judge Guillaume (Presiding) Judge Koroma and Judge Vereshchetin of the International Court of Justice. The team of Vanderbilt University won the competition. Its member Alan Mingledorff was also the Best Oralist. Its other member was Bill Wade. The team of the University of Paris won the award for the Best Memorial. Its members were Irene Aupetit and Mickael Torrado. The case was written by Prof. Kerrest de Rozavel with Prof. Lyall. The case and the written briefs will be published in the IISL Proceedings. The finals of the 9th Competition will be held in Rio, October 2000, after regional preliminaries to be held in the Spring of 1998 in Europe, the USA and a new round to be held in Australia for the Australasian region. The case concerning a Nuclear Powered Satellite (Homeria v. San Marcos) was written by L. Tennen and distributed to the universities.

An IISL Lifetime Achievement Award was presented to Prof. Diederiks-Verschoor; and a Distinguished Service Award was presented to Dr. Terekhov.

A total of 3 institutional members and 8 individual members was elected by the Board.

Two new members were elected to the Board of Directors, Ms. P. Sterns (USA) and Dr. Ram Jakhu (Canada), and several Board members were re-elected for a new term, among whom Dr. N. Jasentuliyana, who was also re-elected as President of the IISL.

SESSION 1: Legal aspects of space station utilization

Chairmen: Prof. I.Ph. Diederiks-Verschoor & Prof. H.A. Wassenbergh

Rapporteur: Dr O.M. Ribbelink

Dr W. Stoffel and Prof. Dr. Ing. W. Ley wrote the paper "Legal Aspects of Commercial Space Station Utilization: Views And Interim Results of the Project 2001 International Working Group On Space Stations". Dr Stoffel gave an overview of the history of "Project 2001", then briefly discussed some key issues which the Working Group will specifically address: the

regulation (national and international) of access to the ISS, the legal status of the space station crew, the impact of (inter-) national competition law, and patents/intellectual property rights. At a later stage institutional aspects and questions of liability will be raised. ISS augmentation and the use of OS beyond the ISS will be discussed at a Working group meeting in June 2000 (Berlin) or at the final conference of the Project in May 2001 (Cologne)

Dr André Farand spoke about “Legal Environment for the Exploitation of the International Space Station (ISS)” and pointed to the Three-layer Legal Framework which has been put in place for the ISS. The first layer is the 1998 IGA, which will replace the 1988 IGA. The second layer is formed by the 4 Memoranda of Understanding, that is, between each designated Cooperating Agency and NASA. The third layer, the implementing arrangements, builds on the broad framework established by the IGA and MOUs. With this comprehensive legal regime the States concerned have created links between the ISS modules and personnel, and their territories. Interestingly, the development of ISS rules calls for harmonisation of the national laws of the European Partner States. The most urgently needed, but also very complex, document is a Code of Conduct for astronauts, which is foreseen in art. 11 of the IGA, now under discussion.

Dr E.A. Frankle presented his paper on “Legal Aspects of Space Station Utilization”. The General Counsel of NASA emphasized the US position towards the commercial use of the ISS. The US has the right to use an estimated 75% of the total resources of the ISS, of which share NASA has committed that 30% will be commercial use. NASA, which will take care of the implementation, has already received over a dozen entrepreneurial proposals. A major barrier to commercial success is the (general) US rule of full-cost-recovery, through a user charge, of the use or support provided to a person or entity, e.g. transportation by Space Shuttle. In July 1999 a legislative proposal has been put forward to US Congress for a demonstration program with a flexible price structure, which also allows NASA to reinvest receipts under the program. It has been proposed to get the US Government out of the management of the ISS utilization share, via the creation of an NGO, somewhat similar to the Hubble Space Telescope construction. Dr Frankle concluded with the statement that NASA is very committed to an aggressive and innovative commercial utilization approach for the US share of ISS resources.

Prof. T. Kosuge spoke about the “US Commercial Space Act of 1998 and its Implications on International Space Station”, a topic closely related to the previous paper, but from a non-US point of view. He discussed the active role of NASA in the efforts to privatise the exploitation of the earth orbital space, as demanded by US Congress through the Commercial Space Act of 1998. It is believed that free and competitive markets are the most promising for the economic development of this orbital space, for which the ISS is constructed. According to Kosuge, the efforts of NASA will have both positive (costs, service, efficiency) and negative (ISS will never become fully commercial) results. Also, with regard to commercialization and privatization there is still a wide gap between the accelerating US efforts to shift from a government dominated space economy to a private-led space economy on the one hand, and the situation in Japan and Europe on the other; Europe does not proceed quickly due to industrial politics, and many of Japan's activities are still government-led.

Prof. G. Catalano Sgrosso's paper was entitled “Legal Status of the Crew in the International Space Station” and dealt with the need for the classification of the legal status of Astronauts in space law. In air law specific and detailed rules exist for both crew and passengers, but in space law only the general (romantic) notion of "envoy of mankind" can be applied, which is

mostly relevant in relation to assistance and rescue operations. Nevertheless, in the past, national (and some international) rules had been developed for the crew of a space vehicle. But for the ISS new approaches have been chosen. Not only has ESA developed an Astronaut's Handbook, but all ISS partners are jointly developing the ISS Crew Code of Conduct. Each astronaut will have rights (health, safety, compensation for damage) and duties (observe civil jurisdiction, submit to criminal jurisdiction, protect intellectual property). This is a very important innovation which offers the possibility to develop further rules for the regulation of the life of space station crew members. It is hoped that the Code of Conduct will be ratified before the first US/RF crew will arrive.

The paper by Dr M de Esquivel de Cocca was read by dr O. Fernandez Brital. "International liability for damages caused by persons or space objects in outer space or on celestial bodies to persons, properties or environment in outer space or celestial bodies" discusses the adaptation of concepts such as, inter alia, "launching state" and "space object", to better cope with today's and tomorrow's reality.

Ms H. Walker spoke on "Potential Patent Problems on the ISS". In her very clear presentation she discussed the potential conflicts that may emerge between the patent regimes of the three "countries" with a laboratory aboard the ISS (USA, Japan and Europe). These may e.g. result in infringement on experiments due to jurisdictional arrangements, the determination that the subject of an invention does not qualify for a patent, or that the specific ISS laboratory environment prevents the invention from being patentable. This may be caused by different criteria applied by the three patent offices, e.g. the US knows "broad" patents while Japan and Europe use much "narrower" patents; that work is actually advancing through building on already patented material; or even that there may be different owners of the same patent due to different regulations. Apart from that there are specific problems with the "unpatentability" of some inventions, esp. regarding discoveries ("man-made" versus natural), biotechnology, and computer programming. In addition there are specific problems regarding the patentability directly related to the ISS: disclosure, the obviousness of the advancement, the establishment of industrial uses, as well as the identification of who has the right to submit an invention for patent. Possible solutions are a new ISS agreement (not likely), cross-waivers pre-empting liability in infringement suits, or a legislative fix introducing a compulsory licensing system.

Dr O. Fernandez Brital then presented his own paper on "Space Station and Debris". His suggestion was that the General Assembly of the UN accept a Resolution in which it is declared that the deposition of debris in space amounts to appropriation and is therefore a violation of the 1967 Outer Space Treaty.

Dr G.P. Zhukov's paper dealt with "Registration and Jurisdiction Aspects of the International Space Station". He announced the first ever publication in Russia of a textbook on space law, of which he was a large contributing author, and then spoke about registration and jurisdiction issues relating to the ISS, and the differences resulting from the approach of the ISS either as one single object or as a multiple object. While reminding the audience that ESA has accepted the Registration Convention, he announced that Intersputnik is now also showing signs of willingness to accept the Convention.

Dr Ram Jakhu gave a brief outline of his (unfinished) paper on "National Implementation of the 1998 IGA on the ISS", which deals with the complications resulting from the

implementation of the 1998 IGA in national legislation, with specific reference to Canada. As it turns out implementation will be necessary for practically all provisions.

SESSION 2 New developments relating to legal aspects of telecommunications

Chairmen: Dr. Lubos Perek & Ms. Marcia Smith

Rapporteur: Ms. J. Clayton Townsend

Dr. K.-U. Schrogl presented a status report, written with Ms. I. Polley, entitled “Project 2001: Status Report of the Working Group on Telecommunications”, which is a part of the extensive University of Cologne study, Legal Framework for the Commercial Use of Outer Space, which will culminate in 2001. The Group is examining whether the current legal regime is adequate and what is required in terms of level and forum for the future legal framework. Five topics were identified for further study: licencing issues, frequency issues, trade issues, international service providers and globalization issues.

Dr. Schrogl also presented the paper by Dr. L. Martinez, “Legal implications of globalization issues, from e-commerce to the internet”. The paper examined whether e-commerce conducted over Internet-based satellite links affects nation-state and IGO compliance with obligations under the outer space treaties. The author concluded that as yet the Treaties do not pose a hindrance to the legal expansion of satellite based e-commerce, but certain conflicts can be expected to arise.

Dr. J. Heilbock mentioned the competition between terrestrial and satellite-based mobile communications and discussed the innovations of the “Satellite Component of the Third Mobile Communications Generation”, which can provide, inter alia, universal personal telecommunications, a platform for a virtual home environment, extended roaming modalities and a sophisticated smartcard for authentication purposes. He explained the developments within ITU leading to the third mobile communications standard IMT-2000, described its service capabilities, identified potential network operators and reported on licencing developments in the US and Europe.

Perhaps the most controversial paper was presented by Mr. R. M. Moore, “Piercing the diplomatic veil: encouraging commercial satellite systems to lead negotiations over Radio Frequency Spectrum by reforming ITU Regulations.” He suggested that the responsibility for coordinating a satellite system through the International Telecommunications Union should be left to the entity that proposed the system in the first place and not to the local regulator of the country that supports that entity’s interests. Further, he advocated that the ITU should allow only one delegate per nation to attend the World Radio Conference.

In his paper “Should GNSS standards that are uniform for all GNSS users be established, or are unimodal standards satisfactory?”, Prof. P. Larsen gave an extensive overview of the regulatory environment for global navigation system providers for the US, Russia, Europe, and INMARSAT. He stressed the multifaceted character of GNSS and pointed out the risk of conflict between the different standards, and suggested better international coordination and common GNSS regulations. He indicated that agreement seemed to exist at the Unispace III conference about the desirability of standardizing all the uses of GNSS.

Mrs. R.M. Ramírez spoke about “Stratospheric stations: do their operation cause sovereignty problems?” According to the technical and regulatory considerations included in the ITU

Radio Regulations (RR), it is not possible to face sovereignty problems, as the hypothesis that could cause such problems and that could avoid them are identified:

* Platform installation. - Registration before ITU, according to the procedure established in the RR, causes that the countries that could be affected shall be notified of the technical characteristics and of course they could object the installation and point out that in case that a stratospheric station is installed, the existing and the projected services could be protected.

* Provision of telecommunication services. - The rule is that every country provides the services within its territory and in the case that an operator intends to provide services in other country, he shall submit to the legislation of such country and be previously authorized for that.

For the case of Mexico and the US, Mrs. Ramirez held that the best mechanism for two or more countries to establish operation terms and conditions of any kind of telecommunication services could be concentered through the execution of international agreements.

Ms. M. Rothblatt's paper on "Legal aspects of geostationary platforms in the Stratosphere" suggested that space law should apply to stratospheric platforms which can operate at 20-30 km altitude, such as Sky Station. She held the view that if an object can function like a satellite as a result of helium pressure instead of orbital mechanics, then it should be treated like a satellite (and space law applied). There is no reason why space law would apply to a GSO satellite at 40.000 km or to a system like Iridium at 100 km, but not to a system operating at 20 km. She proposed to extend the scope of space law down to the 20 km regime above controlled airspace where the satellites of tomorrow will reside.

Dr. L. Perek concluded the session by discussing the role of the ITU in radio communications and suggested greater coordination regarding the geostationary orbit by UN/COPUOS. COPUOS, he said, should focus on upholding the scientific basis of discussions; supporting and maintaining an orderly and rational conduct of space activities; supporting a wider adherence of Member States to instruments of space law, especially the Registration Convention; supporting mitigation of risks posed by space debris and the systematic use of disposal orbits; and establishing a closer liaison with the ITU.

SESSION.3 - Legal Implications of Expanding Privatisation in Space

Chairmen: Prof. J.F. Galloway & Mrs T.L. Masson-Zwaan

Rapporteur: Mr. P.H. Tuinder

Ms. S.U. Reif presented the paper written with Mr. B. Schmidt-Tedd on "Views and interim results of the 'Project 2001' Working Group on Privatisation; Legal Framework for Expanding Privatisation in Space". The aim of the group was to examine which legal consequences and risks are more or less common to the different approaches taken by governmental agencies in order to privatise space activities. Attention will be given to the interaction between international and national space law as well as to topics like civil liability and the protection of intellectual property rights, in relation with the increasing involvement of private entities in outer space activities.

Mr. B. de Montluc's paper was entitled "Recent efforts to enhance new relationships with industry in France" and described the changing relationship between CNES and the French space industry and who set out in an overview the various partnerships of CNES with industry. Mr. de Montluc submitted that these partnerships were fully in line with the trend in the world of privatising governmental operational activities like Intelsat and Eutelsat and the operation of the space shuttle and space station.

Prof. F. Lyall, in his presentation entitled “Privatisation, jurisprudence and space”, emphasised the importance of the rule of law and the limits that should be set to privatisation and competition. International space law as a body of law containing idealistic principles such as ‘the use of space for the benefit of all mankind’ could ‘suffer’ from the interaction with Adam Smith’s Realism. After giving an overview of the thoughts of the realist school, Prof. Lyall concluded that legal rules and effective mechanisms are needed to ensure that the goal of space as a benefit of all mankind is accomplished.

Mrs. J. Clayton Townsend (“Property rights and space commercialisation”) gave an overview of space law provisions that relate to exploration and utilisation of the moon and other celestial bodies and concluded that there is no prohibition of such activities. However, she found a host of unanswered questions especially for the protection of the investor in space while at the same time also protecting the rights of mankind to accessible outer space environments in the future. She analysed relevant terrestrial laws such as (US) mining laws, the law of the Sea and the Antarctic Treaty and concluded that these do not provide for an optimal legal environment to open space for exploitation. According to Ms. Clayton the question is when and what property rights will exist for outer space and this question should be addressed in a timely fashion before problems arise. The goal of such a regime would be to continue to preserve outer space for peaceful purposes and for the benefit of all mankind while at the same time not discouraging private enterprise.

Mr. M.M. Smith presented the paper written with Ms. P. Dasch and Ms. A. Pierce (“Conference on space property rights; next steps”), and reported on a conference held in 1998 by the National Space Society. The authors hold that it is an established rule of space law that private property rights are not forbidden. They believe that the term “national appropriation” in article 2 of the OST only applies to governments, not private entities. They continue to observe that the Moon Agreement does explicitly prohibit private property ownership on any celestial body in the solar system, but that this instrument is “of passing technical interest” and “generally regarded as a dead letter”. The 1998 Conference called for a regime for private property rights, in order to reduce any remaining uncertainties for private investors. A new treaty superseding the Moon Agreement is one option. Another is a multilateral agreement among space powers, or else, states could proceed unilaterally to recognize claims by their citizens.

The paper by Mr. D. O’Donnell (“Comity in Space”) promoted the establishment of a government entity in space, in order to fill the current “political void” and create comity, which would lead to full faith and credit. He proposed the “Regency of united societies in space” or ROUSIS and held that this might provide a way to escape extinction of the human race. Comity should be understood as “courtesy” and Mr. O’Donnell also gave his views on how to apply the concept of “space money” as a means to further develop outer space.

Mr. B. Smith addressed the issue of “Recent developments in patents for outer space” and gave an update of developments in the US and Europe. He illustrated the increasing industrial competition and the use of patents as a weapon in taking a market share, especially with respect to LEO’s and MEO’s. Mr. Smith underlined the importance of the Hughes case in which Hughes had won a multibillion-dollar infringement suit against US Government. Also the case between TRW and ICO had been settled in a deal of more than 150 million USD. He then gave an overview of recently granted space patents which demonstrate potential conflicts between the temporary monopoly granted to a patent owner and Art 1&2 of the

Outer Space Treaty. Also, he submitted that these cases demonstrate that a US patent is the best (and at present the only) weapon for IPR 'wars'. The European Commission was also in the process of extending the Community Patent to 'inventions produced or used on board space-craft and satellites'. This, however, was delayed due to the collective resignation of the Commission in spring of this year. This according to Mr. Smith leads to a situation in which only the US can give protection to IP's in outer space and he hoped that soon other countries would follow which at least would result in the need for co-ordination. He, however, expressed the fear for a patchwork of national regimes that would lead to forum shopping. He concluded that in the actual situation it seems that the Outer Space Treaty does not effectively apply to intellectual property in outer space and that this constitutes an exception to the provisions of the OST.

Prof. C.Q. Christol analysed the Hughes case and its final outcome in his paper "Persistence pays off: the case of Hughes Aircraft Company v. USA, 1976-1999". He indicated that thirteen decisions has been produced in this litigation and gave a historical overview. Prof. Christol explained the various questions that had been addressed in this case, such as the patent doctrine of equivalents, the calculation of damages, or how the "eminent" domain" interest of a state could override the interest of protection of innovative property rights which were developed to encourage creative enquiry and investigation. He also elaborated on the 1990 statutory revision by the USA of the meaning of 'inventions in outer space', in its new "Inventions in Outer Space Statute". The novelty of that Statute was its extraterritorial application to 'in outer space on a space object or component thereof under the jurisdiction or control of the United States'. The Hughes case represented the largest award ever made for a violation of patent rights in the US. The 1990 Statute was adopted to "afford" the protection of inventions occurring in space.

Mr. D. Lihani analysed the recent developments in the US with respect to export controls (especially the Cox Committee Report) and its impact on commercial satellite manufacturers and space launch providers. He gave a short historical overview of the Export Policies of the Reagan, Bush and Clinton administrations and commented the new regulations issues in March 1999 on regulations regarding the export licensing of communication satellites and technical data related to those satellites and launch vehicles. Pursuant to the Cox Report the licensing responsibility for commercial communications satellites was transferred from the Department of Commerce to the Department of State. Also additional export controls and approvals were implemented as requirements for launching US satellites from or by countries other than NATO or major non-NATO allies. Finally mandatory licensing for launch investigation is required as a result of these new regulations. Mr. Lihani concluded that while emphasising the importance of ensuring that no technology is transferred that may improve other nations 'indigenous' ballistic missile and satellite capabilities it is important that the concerns of the commercial space industry will be heard before the congress as they will have to prepare for inevitable delays and uncertainties.

The paper by Dr. V. Veschunov on "Lockheed Martin Intersputnik (LMI) as a form of commercialization in the activity of the intergovernmental satellite organization" was presented by Dr. G. Zhukov. The paper explained the characteristics of the joint venture agreed in 1997, a unique deal between an IGO and a transnational corporation. This project will allow Intersputnik to be a successfull competitor on the worldwide satellite communications market.

Mr. M. Sato and his co-authors Prof. T. Kosuge and Dr. P. van Fenema gave an assessment of the “Legal implications of satellite procurement and trade issues between Japan and the United States”. Authors discussed the so-called “Super 301 provision” of the 1988 US Omnibus Trade Act, according to which procurement by Japan of all satellites except R&D must be subject to open bidding. Since Japanese satellites are not internationally competitive, this has prevented them from buying Japanese satellites and has advantaged US satellites. Authors explained that although these discussions with the US were not legally binding, Japan had observed them. They gave an extensive overview of the practice and concluded that all satellite procurement contracts by the Japanese government and its related entities in the last decade had been awarded to the US satellite industry. Authors encouraged use of the dispute resolution procedures of the WTO established in 1995, and urged the WTO to review whether the current situation preserves equality between the two nations and is consistent with principles of justice.

Mr. M. Davis’ paper was summarized by Mr. R. Lee. He presented the Australian Space Activities Act, which came into force in December 1998, and gave an overview of the Australian approach towards financial responsibilities and the sharing of risk between launch operators and governments and set out the differences with other national space laws. Mr. Davis concluded that due to the likely cost of insurance and the extent to which the Australian government would not seek indemnity from launch operators, Australia should be well placed to take advantage of commercial space launching projects.

Mr. W. Gaubatz in his presentation on “International certification for commercial reusable space transportation” set out the need for such standardised rules in order to protect public safety and safeguard property and environment, similar to the system applied in the field of air travel. This is a necessity in order for space travel to become generally accessible to the general public. He elaborated on the applicability of principles applied in the field of air transportation to space travel and recommended the adoption of a certification process for reusable space transportation systems encompassing type design and production certification, as well as spaceworthiness and commercial operator’s licencing. He also recommended the IISL to establish a working group, ‘International Spaceways Forum’, to discuss these matters.

Mrs. Hofmann (formerly Mrs. Hoskova) presented an analysis of the Baikonur agreements. Baikonur is at present the only launching site that Russian space industry can use for manned missions, geo-stationary, lunar, planetary, and ocean surveillance missions. Kazakhstan temporarily banned the launching of Russian rockets due to the Proton failure of July 1999 and due to the delay in the payment of the rates for the Baikonur lease. This raised the question of the legal status of the Baikonur Cosmodrome. Mrs Hofmann then gave an overview of the two basic legal instruments that create the present legal regime of the Baikonur complex; viz; the General Principles Agreement of March 28, 1994 and the Leasing Treaty of December 10, 1994. She concluded after having examined the main provisions of both instruments that a ban on the use of the launching site was not envisaged and that Kazakhstan was not justified in suspending the operation of the legal regime. Mrs. Hofmann noted, however, that due to the importance of the space facilities both Parties settled their dispute very quickly in July 30, 1999 and this proved that the legal regime was fully capable of coping with such a complex situation.

Finally, Dr. G. Gàl presented his paper on “International Law and domestic laws governing commercial space activity by space stations”. He discussed notions such as ‘space station’, ‘commercial’, ‘national’ or ‘international’ space station, ‘jurisdiction and control’, and the

application of domestic laws. He stressed the necessity to elaborate a uniform civil code or at least principles of civil law for outer space and foresaw a major role for lawyers in regulating commercial space activity.

SESSION 4: Other issues of space law, including legal aspects of launching space objects from non-terrestrial sites

Chairmen : Dr. L. Tennen (USA) and Prof. J. Monserrat Filho (Brazil)

Rapporteurs: Mrs. M. Mejía-Kaiser (Mexico) & Mrs. S. Reif (Germany)

"Project 2001: Status Report on the Interim Results of the Working Group on Launch and Associated Services" was presented by Mr. Ph. S. Makiol and co-authored by Mr. G. Gruber. The presentation gave account of legal questions raised in this Working Group of the research project on the Legal Framework for the Commercial Use of Outer Space initiated by the Institute of Air and Space Law of the University of Cologne and the German Aerospace Center (DLR). The issues with which the Group will be dealing more thoroughly, encompass licensing procedures and conditions as well as questions of liability and responsibility, insurance, safety, international trade, and security with respect to Launch Services. A Workshop to take place in Bremen, Germany, on 19 January 2000 was announced as a next step.

Mr. E. A. Frankle introduced his and Mr. E. J. Steptoe's paper on "Legal Considerations Affecting Commercial Sea Launches From International Territory". Main point of the authors was that critical issues (liability, safety, insurance and financial requirements, etc.) can and should effectively be addressed and solved by means of national legislation, policy, and bilateral negotiations, in order to make risks foreseeable and to lessen that risk. The international legal regime did sufficiently outline main responsibilities, although it is strained by the increase of complex structures of ownership, control, and territorial nexus - as in the Sea Launch project. The authors take the view that these complications were outweighed by a (further substantiated) public economic and legal self-interest of governments to license space activities and to establish safety and liability regulations, which should be further encouraged. As to Arts. VI and VII OST, authors suggested that although Art. VI supported that a state's failure to authorize and supervise gives rise to an international claim for breach of that responsibility, the Outer Space Treaty did not equate its Art. VI responsibility (and a state's exercise of responsibility by licensing a launch) with legal liability, since Art. VII OST did not confer liability upon the licensing state.

Also Prof. A. Kerrest in his "Remarks on the Notion of Launching State", considered that changes in the international framework were neither desired nor necessary. He emphasized two substantive issues with regard to the launching state concept, while several others are dealt with in his paper. The first issue concerned the change of registry in case of sale or lease of an object in space. The Registration Convention requires that a 'launching state' shall register a space object. The state whose entity acquires an object already in space - although this state is responsible for activities of its entity with all legal consequences - however might not be a 'launching state' and, thus, not be able to register the object and exercise jurisdiction and control nor be absolutely liable according to Art. VII OST and the Liability Convention. Prof. Kerrest proposed that this gap could be closed either by complex bilateral agreements or by an interpretation of the Registration Convention as to that registration by a 'non-original launching' state will be accepted, i.e. that a state could become launching state by its own recognition. The second issue he discussed was the plurality of launching states, which he did not regard as requiring legal change, since the intention of this concept is to protect potential

victims and national states on the other hand are free to regulate which parties are going to bear the eventual financial burden.

Prof. J. Monserrat Filho shortly introduced the paper on "International Cooperation in Launching Facilities" by Ms. V. Leister and Mr. M. F. Frazier, who propose ways how launching facilities could become ventures for the benefit of emerging countries. The proposal is based on the framework of international space law, which purports international cooperation and the use of outer space for the benefit of all mankind. It first outlines national laws and regulations applying to space activities in Russia and the United States, with particular consideration of national export control regulations. While the on-going commercialization might enable developing countries to provide modern launch facilities fulfilling the needs of customers and public safety, the authors consider restrictions on the export of technologies as a bottleneck for the growth of activities and as preventing international cooperation. Based on a list of ideal requirements for a launch site, authors propose that developing countries set up commercial launch sites as "free economic zones" and apply the revenues gained therefrom in new space technology initiatives. Public interest in their view could be safeguarded by an international audit system to be backed by the possibility to bring disputes to an arbitral tribunal.

The paper on "Legal Aspects of Launching Space Objects from Non-terrestrial Sites" presented by its author, Dr. M. Longo, examined launch activities from different maritime locations, but also the launch of space objects from the air and from outer space. She pointed to the significant role of national territory, which in her view leads to difficulties in identifying 'launching states' considering new launch possibilities. As concerns sea launches, those from platforms located in the territorial sea of a state raise no particular legal problems. With respect to launches from platforms located in an Exclusive Economic Zone (EEZ), Dr. Longo sustained that the coastal state should be held liable due to its exclusive jurisdiction on artificial installations in that zone under the UN Convention on the Law of the Sea 1982, while as to launches from the international sea, the platform's flag helped to identify the liable state. The state from whose airspace an object is launched might be considered as launching state with respect to air launches, a view that however is not shared by this author on the grounds that use of a states' airspace reflected a very low grade of participation. For activities within outer space, where no territorial link is involved, Dr. Longo found that victims had to rely on identifying a liable state on the basis of bilateral agreements, or to refer to the state which procured the launch or which owns a certain facility. In conclusion, she advocates to increasingly control these activities and their insurance, possibly by an international body.

Dr. O. Ribbelink and Mr. P.H. Tuinder elaborated on the issue of launching from a location in outer space - which can be regarded as a classical 'non-terrestrial' site – by confirming that "A Launch is a Launch is a Launch is a Launch". They examined the issue in particular with regard to the applicability of the existing instruments of space law and the pertinent issues of liability, jurisdiction and control, etc. Considering the potential relevance of the altered facts in case of space launches, i.e. whether the launch location, the direction of the launch, or the location of the object's assembly should influence legal assessment, the authors came to the result that no serious problems were entailed, since the launch - even if conducted in outer space - would have to take place using certain facilities and thus a launching state could be identified in application of the general rules of the existing space law instruments.

Prof. J. Galloway stated in his paper "Globalization, Sovereignty and the Common Heritage of Mankind" that the Common Heritage of Mankind Principle (CHM) has not evolved

beyond a philosophical principle, based in idealistic and liberal forces. The author commented that although the CHM existed for some time, its introduction in diplomacy and law has not been possible, because this concept was not strong enough to withstand the forces of capitalism, globalization and nationalism. He concluded that if the idealistic and liberal forces prevail in the globalization era, then we shall see a reinforcement of Article II of the Outer Space Treaty and a more enlightened perspective on the Moon Agreement's CHM provisions.

Mr. Monserrat Filho presented the paper "The Challenge of World Knowledge Gap and Space Law". The author stressed that the economic gap between the developed countries and developing countries has widened in the last decades and he identified the unequal distribution of scientific knowledge as one of the main reasons. The author proposed that developed countries must support programs in developing countries to increase their capabilities to acquire, absorb, create and utilize knowledge. Mr. Monserrat stated that very often, space technologies are presented as ideal means to reduce the gap. Although at present space technology has not achieved the beneficial role it could play, he affirmed that there are already valuable co-operation agreements. Mr. Monserrat concluded that the cooperation in the space area may determine a positive change for new dynamics of global development, beneficial for all countries.

The paper "Emerging Principles of International Space Law" was presented by Mr. Y. Hashimoto. He proposed to review the International Space Law principles which were created in the cold war era. As a basis to start the discussion, the author suggested the introduction of emerging principles as "common interest of all mankind", "peaceful use" and "international cooperation" to serve as the basis for the effective regulation of space activities. Mr. Hashimoto concluded that these emerging principles may contribute to peace and security in the future.

Mrs. M. Rothblatt presented the paper "Exobioethics: Legal Principles for Interactions with Non-Terran Species". She addressed the fact that in the past months many planets have been discovered, raising the possibility that other life forms may have evolved outside the Earth. She asserted that humans from the Earth as a whole are not well prepared for the consequences of a contact with life forms outside our Planet. She stressed that there is a need to set international standards for contact activities with life forms outside the Earth.

Dr. G. Lafferranderie's paper was presented by Mrs. T. Masson-Zwaan. The paper, "What role for international organisations in the Century ahead?", examined the forms which international cooperation could take. The levels vary from worldwide, regional organizations such as the UN or ESA, to states, to R&D and operational organizations, as well as to industry, users etc.; moreover these each have their own internal rules and there are numerous bilateral agreements, making it difficult to get a clear view. There is an obvious need for clarity, and the author stressed the need for the exchange of information. He is not in favour of a world space organization, but encouraged accession to the space treaties and the adoption of national space legislation, and saw an important role of coordination for the UNCOPUOS in this regard.

The next presentation was given by Mr. W. N. White Jr. on "Implications of a Proposal for Property Rights in Outer Space". Mr. White proposed a regime of limited property rights in absence of territorial sovereignty. He commented that Article II of the Outer Space Treaty prohibits national appropriation of outer space but does not prohibit private appropriation.

The author foresees that such a limited (in time) property rights regime would provide legal certainty to investors and entities participating in space activities and will also prevent military conflicts. The implementation of national and international registries would be advisable as well as a multilateral treaty to coordinate such rights. He concluded that real property rights will help the easy transition to self governance in outer space.

A background report on "Earth Observation and Data Policy in Europe: The Legal Issues – The EOPOLE concerted Action Project" was given by Dr. F. G. v. d. Dunk. The EOPOLE Project (Earth Observation Data Policy and Europe), has the aim to coordinate European national research in earth observation data policy as well as to recommend improvements to obtain a stronger user perspective, and to answer particular European needs as well as those of increased privatization. Dr. v. d. Dunk's paper is based on a pointed analysis of the legal background of earth observation activities and the European organizations involved in earth observation activities and their legal structure. He then lists legal issues raised such as licensing provisos, liability, intellectual property rights, and privacy of data, evaluating with regard to each issue potential solutions within the relevant existing structural framework(s) and possibilities or effects of harmonization. Stressing the meaning of law as an instrument of policy implementation, Dr. v. d. Dunk further informed that at the present stage of the EOPOLE analysis is concerned with arriving at an inventory of legal aspects, while a more detailed substance-oriented analysis will be carried out once the interests of various user communities have been clarified.

The presentation of Prof. M. N. Andem was entitled “Twentieth Anniversary of the 1979 Moon Treaty: The Legal Status of the Moon and Other Celestial Bodies Revisited in the Light of Commercialization of Outer Space Activities”. Prof. Andem commented that the Moon Agreement has been the subject of discussion by eminent authorities and experts in space law, although it has binding force only for 9 countries, none of them space powers. In his paper, Prof. Andem reviewed the on-going discussions on the implementation of the 1979 Moon Agreement provisions.

The paper “Should the Lunar Crater SAHA be Accorded Special Legal Protection?” was presented by Dr. P. Sterns & Dr. L. Tennen. The authors continue to support the proposal by Dr. Heidmann on the Protection of Lunar Crater Saha. They commented that substantial progress was made in the international scientific community since its first discussion in 1994. Sterns and Tennen analyzed various aspects of the construction, operation and implementation of infrastructure necessary for a radio-astronomical facility under consideration of the Moon Agreement provisions. They proposed that Crater Saha may be not only a candidate for consideration as “international scientific preserve”, but also subject to an “international regime”, as referred in Article 11.5 of the Moon Agreement.

Mr. Ricky J. Lee introduced his paper “Creating an International Regime for Property Rights under the Moon Agreement”. Mr. Lee discussed that the international regime governing activities in outer space must be transformed allowing some form of property rights to protect and facilitate space ventures. He commented on the various valuable minerals and gases that may be found on the Moon, asteroids, as well as the use of energy from the Sun. The author commented that Article II of the Outer Space Treaty has not been interpreted as to limit appropriation of celestial bodies resources. He also mentioned that Article 11.3 of the Moon Agreement prohibits the creation of full property rights by national governments, but is not in prejudice to an international regime. He concluded that with the example of the adoption of a regime for the exploitation of deep seabed resources and with the willingness of developing

countries to balance their economies in the new economic order, there is no better time to establish and implement a new legal regime for exploitation of resources in outer space and celestial bodies.

Prof. Paul Larsen presented the paper “Current Legal Issues Pertaining to Space Solar Power” (SPS). The author discussed the possibility of placing solar energy collecting satellites in the geostationary orbit, aiming to transmit energy to the Earth, via microwave beams. Prof. Larsen commented on one of the proposals where this type of satellite of extensive mass and area should be constructed on the Moon with lunar resources. Prof. Larsen made reference to the outer space agreements and other international instruments, as well as national laws (USA) to be considered, i.e. launching of SPS, responsibility, liability, property rights, and protection of environment (harmful contamination of outer space and Earth). The author addressed the possible scenarios for the establishment of the enterprise that would undertake the construction and operation of SPS. As a conclusion, Prof. Larsen recommended that the enterprises to undertake the development, construction and operation of SPS shall engage first in legal planning to smoothen the way for the implementation of SPS.

The complexity of launch activities from the sea and the legal technical identification of liable subjects remained a core issue in this session. Prof. Dr. G. P. Zhukov in his contribution on the "Liability Problem on Sea Launch Venture Activities" as well underscored that the liability issue in a project like sea launch can be examined from two angles, the liability provisions of Outer Space Treaty and Liability Convention and, on the other hand, the national provisions of the US Commercial Space Launch Act. He further pointed to the different categories of involvement of national states and the legal issues raised by financial investments in this particular project, where the US, Russia, Norway, and the Ukraine are involved by investments of non-governmental entities, while the U.K. and Liberia have connections of a different category, i.e. the incorporation of the venture and flag of the vessel.

Last presentation of the session was a very instructive intervention by Ms. Masami Onoda on the "Japanese Earth Observation Data Policy", in light of Japan's more recently achieved technological capabilities in earth observation hardware, the increasing internationalization, and the growing private sector. She introduced two main points of the current earth observation policy developed as an internal modus operandi by the National Space Development Agency of Japan (NASDA): the observation that the release of data is going to serve exclusively peaceful purposes, and the application of a two-tier pricing policy, enabling distribution for research purposes at the cost of reproduction, but including royalties in consideration of the market price level for data used for commercial purposes. Ms. Onoda clarified in her presentation that this pricing policy would also apply to the non-discriminatory access of a country the territory of which has been sensed. Also the fact of acquisition of data for research purposes had to be substantiated and would be followed up by NASDA, as the use of data for peaceful purposes would as well be scrutinized by the Agency. In her paper Ms. Onoda further gave details on the legal, organisational and technical background of this policy and an outlook on the parameters and basic questions to be solved for a future data policy.

DISCUSSION SESSION

The Chairmen and Rapporteurs of the four sessions first gave a short overview of points raised in the various papers that were interesting for further discussion.

The IISL President then reiterated those issues, which included, inter alia:

- Implications of territorial integrity and national legislation for space activities
- National versus international legislation (patents, conflicts of law, space station, translating international agreements into national legislation, legal status of space debris, rules of the road for space transportation, proliferation of space activities...)
- Telecommunications, third generation satellites and their implications, are new standards needed?, a role for companies within ITU?, uniform standards GNSS, can high altitude space platforms be considered as space objects?,...
- Privatisation and Commercialisation, property rights in space, when and how?, setbacks of privatisation such as lack of public service, regulation of entrepreneurs, export controls, launching from Australia as an economic alternative, use of the Baikonur launching site and the recent accident leading to a ban,...
- CHM, sovereignty, protection of the moon; establishment of a licencing authority for resource exploitation,
- Special legal protection for the SAHA crater
- Launching from the high seas or from outer space
- Marketing of remote sensing data
- Intellectual property rights
- NASDA's two-tier policy
- Nature of international cooperation, organizations
- Solar power satellites.

Subsequently, an open discussion focussed mostly on the question of property rights in space and on a few other matters. The remarks have been grouped per topic. The following notes give a general indication of the discussions but do not claim to represent official views by any of the participants in the discussion. The author apologises if any remarks have not been properly recorded.

PROPERTY RIGHTS IN SPACE

Dr. von der Dunk started off the discussion session on the topic of property rights in space, which had been raised by various authors. He distinguished between three different "properties"; first, in the case of property on your possessions such as a camera, ownership is not affected by their presence in space. Second, real property, the problem is that there are no sovereign territorial rights in space, therefore in his view such property can not exist in space without further ado. Thirdly, intellectual property, this is in most cases limited to a certain territoriality, therefore also difficult to maintain in outer space.

Dr. Doyle proposed to add a fourth category, i.e. movable property created in outer space with materials from space. You would have similar rights as on earth on movable property. Since "use" of outer space is free, you may move materials and use them for gain.

An engineer worried whether such movable property would be considered as the "Common Heritage of Mankind", and whether he would really have true ownership.

Dr. Jasentuliyana noted that for instance in the field of telecommunications, you need a licence to carry out activities. Once you have that, you may gain profit with your activity. As for the CHM concept, nothing in the Moon Agreement says that you can not make use of your property, it only says then when it becomes feasible to exploit the moon, a regime shall be established (article 11), and such a regime should take into account both the interests of the countries who made the investments, and the countries who do not have the resources to go into space. Under the law of the sea convention, there is also a licensing authority and that works quite well.

Dr Doyle was of the opinion that the CHM is an ideological and philosophical principle, and not a legal principle. The Moon agreement has received only 9 ratifications in twenty years, so it rather proves the NON-applicability of the CHM principle! In any case, it is not a principle of international law and still subject to much debate.

Dr Jasentuliyana disagreed that the non-ratification of the agreement proves the non-applicability of the CHM concept. The USA did not ratify the Law of the Sea convention until a few years ago, and the moon agreement may well come into effect for the US one day as well.

Prof Lyall proposed that someone should write a paper for the Rio colloquium on the question whether something new you make in space with space materials becomes your property.

Prof. Andem reminded that we should not do in space what we did on earth, law brings harmony and we must remember that we all need each other.

Dr. Jakhu supported Prof. Lyall's ideas as presented in his paper. We live under the rule of law, privatisation is the current trend, and this must be encouraged but it also needs to be regulated, in order to smoothen the process. Obviously, private companies want to make a profit, but the public interest may be at risk if there is no regulation. You need regulation to allow competition, and to protect the public interest. We have to look at the global level and not just the national level.

Dr. Tennen reacted to what Dr. White had said in his paper, i.e. that Article 2 of the OST had resulted from a "secret meeting", because no agreement could be reached on the question of private property rights. He had contended that Article 2 leaves room for private appropriation, as only national appropriation is prohibited. Dr Tennen strongly disagreed with that contention, as merely the fact that national appropriation is forbidden does not imply that private appropriation is allowed! A state cannot authorize its citizen to do what it may not do itself! As regards the historical background of the principle of non-appropriation Dr. Tennen also made reference to the earlier UN GA Resolution of 1962, which in its third principle has the same wording as Art. II Outer Space Treaty and which also did not differentiate between 'public' or 'private' national appropriation.

Mr White replied by stressing that there had been strong disagreement between the US and the USSR on the question of private property rights, and that several organisations wanted private appropriation included in the article. States may delegate authority to their citizens, and his proposal was not to grant them rights they do not have. His proposal stays within the limits of the OST. States would delegate rights to the private sector without affecting their responsibility.

Mr. Mayer said he bought a piece of the moon and asked if he could sell it.

Dr. von der Dunk replied that he could do whatever he wants, but someone else could sell exactly that same piece to another person and you could not do anything to prevent that.

Dr Gal reminded of the "nemo plus" rule, i.e. you can never sell what you do not have first.

Mr. Jasentuliyana agreed that enforcement is the issue here.

Dr Doyle stated it was simply fraud, and against US federal law, to sell a piece of the moon. Mr Mayer should see a lawyer and get recovery.

Dr. von der Dunk then made clear that his previous remark was only the superficial answer; he summarised the relevant parts of his paper for IISL-Torino on Mr. Hope, Mr. Jürgens and the ownership of the moon, adding ref. to the Lunar Embassy-website which is now 'selling' plots of the moon, and concluding that the US were very probably internationally at fault in letting Lunar Embassy going ahead, since allowing a US entity operating from US soil to sell privately parts of the moon for US dollars and under US jurisdiction amounted to a *de facto* exercise of US jurisdiction over the moon which was contrary to the non-national-appropriation principle of Art. II OST.

Dr Jakhu said that the discussions on national appropriation took place at a time when there were not yet any private activities, so we should not try to read into that article what simply is not there. Private companies only became active at a later stage. We should not confuse what the law is and what the law perhaps should be.

Mr. White noted that although local judges are required to adhere to treaty law, they are not always aware of the space treaties, and thus the person selling pieces of the moon may have acted in good faith selling his part of the moon, when a lawyer had earlier registered his deed (thus ignoring treaty law). It is therefore important to bring space law to the attention of local judges.

Ms Sterns said that actually no judge had been involved in this particular case, the "property" had simply been recorded with a county recorder and the sale was fraudulent.

In concluding this debate, Mr. Jasentuliyana briefly reviewed the historical means by which sovereignty over property is established and noted that the traditional means have not been exercised concerning the moon or other celestial bodies, and the OST forbids that any sovereignty can be exercised. Absent sovereignty, the alleged "owner" would have no rights to convey in the unoccupied moon property case.

Mrs. Hofmann-Hoskova asked when property rights would cease in case a space facility is abandoned. Mr. White proposed two alternatives: unilateral declaration of expiration of ownership by the respective State, or a fixed expiration term after a space facility has been abandoned.

LEGAL STATUS OF STRATOSPHERIC OBJECTS

Dr Perek recalled the proposal made in session 2 that stratospheric object be called space objects, even though they operate at only 20 km altitude. He disagreed, as this would lead to confusion, and he hoped that this would not be discussed for the next twenty years, as was the case with the question of delimitation of outer space. In his view, a space object is an object in outer space, and a stratospheric object is an object in the stratosphere.

Dr Gal reminded that even without delimitation, the functional theory had worked very well in practice. Since the stratospheric object is not in an orbit, it is not a space object. Otherwise, Concorde could also fall within the definition of a space object; however it is not a space object because it is not orbiting; this is the functional theory.

STATUS OF PRIVATE COMPANIES IN ITU

Dr Jakhu disagreed with the proposal that had been made by Mr R. Moore, to allow private companies to be autonomous actors within ITU, because it is not feasible; there can be no rights for private companies at a global level, we are not yet ready for that. But if it does happen sometime, there will be a need for a regulatory body.

LIABILITY FOR SPACE TRANSPORTATION

Dr Gaubatz raised the issue of liability for the operation of space transportation systems; of course the public was not involved until now, so this has not been an issue, but when the general public gets access to outer space transportation, this needs to be addressed. An IISL working group may be the right forum to do that. (Dr. von der Dunk again brought up this proposal at the General Assembly, which Mr. Gaubatz, not being an IISL member, did not attend. The IISL Board requested him to submit a specific proposal to the next Board meeting.)

Dr Jasentuliyana concluded that apparently there is a lot of business for the IISL and that lawyers will have a busy agenda solving all these questions, after which he had to close the discussion for lack of time.

Hereafter, the 42nd Colloquium was closed and the President thanked all those who contributed to it and invited all to the 43rd Colloquium in Rio de Janeiro, Brazil.*

With many thanks to the Session Rapporteurs:

Olivier Ribbelink (The Netherlands, for session 1)

JoAnn Clayton-Townsend (USA), for session 2)

Harry Tuinder (The Netherlands, for session 3)

Martha Mejia-Kaiser (Mexico) and Suzanne Reif (Germany) for session 4.

Edited by:

Tanja Masson-Zwaan (IISL Secretary/ Colloquium Coordinator)

* 2-6 October 2000. Information about the Colloquium, session topics and procedure for the submission of abstracts, as well as the Manfred Lachs Space Law Moot Court Competition may be obtained from the IISL Secretary via e-mail (jtmasson@cyberway.com.sg), or from the IAF Website (<http://www.IAFASTRO.COM>)